

## MICROMAGNETIC SIMULATIONS OF PATTERNED ARRAYS

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The formation and growth of magnetic domains in micron-scale ellipsoidal Co particles is examined using micromagnetic simulation techniques. Arrays of these ellipses were patterned and etched from 70 nm thick sputter-deposited Co films. Experiments performed with magnetometry and magnetic force microscopy (Bedrossian and Law, this conference) demonstrated a correlation between the presence of hysteretic behavior and the existence of closure domains at remanence that are topologically inequivalent to the uniformly magnetized state. This behavior was observed to be dependent upon the size and aspect ratio of the ellipses, as well as the orientation of the magnetization with respect to the easy and hard axes. These features are reproduced by micromagnetic simulations using consistent phenomenological constants derived from the experiments. The results clarify the role of the different energetic contributions (anisotropic, inter-layer exchange, and magnetostatic) to the different domain configurations.

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